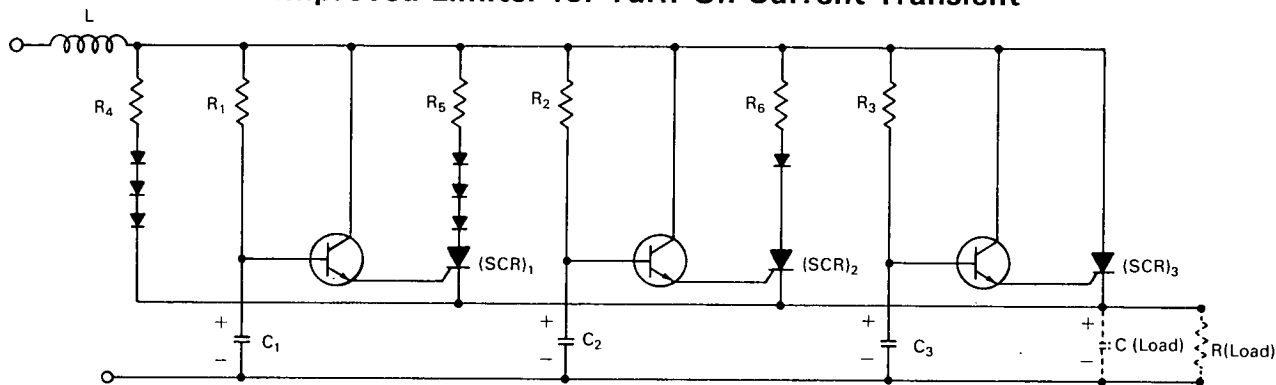


NASA TECH BRIEF



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Improved Limiter for Turn-On Current Transient



This circuit limits the turn-on current transient to a specified amplitude and provides a low-impedance path between supply voltage and load after a prescribed time interval. The circuit offers a wide range of flexibility in adjusting peak current and time to complete connection to the load. It is more compact and lighter than a comparable limiter circuit which uses a large choke but which is still not effective where large load capacities are involved.

The new circuit automatically controls the initial peak current that can flow into a high-capacity load when voltage is applied. The load capacity is charged in four controllable steps. Peak current limiting is controlled by the values of resistors R_4 , R_5 , and R_6 . The time for completion of the cycle is automatically controlled by the selection of time constants R_1C_1 , R_2C_2 , and R_3C_3 . The small choke (L) offers a high impedance to small stray-capacity charging currents and short-duration voltage changes. When power is removed, the sequence of steps is automatically ready for the next power turn-on.

In one modification of the basic circuit, a relay that is switched on by $(SCR)_3$ is used to eliminate the unnecessary holding or gate current to $(SCR)_3$. In another modification a transistor increases the voltage across the relay coil and offers higher gain in the last stage than is obtainable with the first modification.

Note:

Complete technical details may be obtained from:
Technology Utilization Officer
Goddard Space Flight Center
Greenbelt, Maryland 20771
Reference: B68-10384

Patent status:

Inquiries about obtaining rights for the commercial use of this invention may be made to NASA, Code GP, Washington, D.C. 20546.

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Category 01